

Figure 1 : Alignment of N-terminal fragments of Human Hedgehog Proteins

1					
Indian	CGPGRVVGSR	RRPPRK-LVP	LAYKQFSPNV	PEKTLGASGR	YEGKIARSSE
Sonic	CGPGRGFG-K	RRHPKK-LTP	LAYKQFIPNV	AEKTLGASGR	YEGKISRNSE
Desert	CGPGRGPVGR	RRYARKQLVP	LLYKQFVPGV	PERTLGASGP	AEGRVARGSE
51					
Indian	RFKELTPNYN	PDIIFKDEEN	TGADRLMTQR	CKDRLNSLAI	SVMNQWPGVK
Sonic	RFKELTPNYN	PDIIFKDEEN	TGADRLMTQR	CKDKLNALAI	SVMNQWPGVK
Desert	RFRDLVPNYN	PDIIFKDEEN	SGADRLMTER	CKERVNALAI	AVMNMWPGVR
101					
Indian	LRVTEGWDED	GHHSEESLHY	EGRAVDITTS	DRDRNKYGLL	ARLAVEAGFD
Sonic	LRVTEGWDED	GHHSEESLHY	EGRAVDITTS	DRDRSKYGML	ARLAVEAGFD
Desert	LRVTEGWDED	GHHAQDSLHY	EGRALDITTS	DRDRNKYGLL	ARLAVEAGFD
151					
Indian	WVYYESKAHV	HCSVKSEHSA	AAKTGG	SEQ ID NO: 23	
Sonic	WVYYESKAHI	HCSVKAENSV	AAKSGG	SEQ ID NO: 24	
Desert	WVYYESRNHV	HVSVKADNSL	AVRAGG	SEQ ID NO: 25	

Gap(s), indicated by -, added to facilitate alignment

Figure 2: SEQ ID NO: 26 is the consensus sequence of a hedgehog protein suitable for use in developing the conjugated proteins of the invention, antagonist, where "Xaa" indicates amino acids that differ between the Sonic, Indian and Desert hedgehog proteins.

C\* G P G R Xaa1 Xaa2 Xaa3 Xaa4 Xaa5 R R Xaa6 Xaa7 Xaa8 K Xaa9 L Xaa10 P  
L Xaa11 Y K Q F Xaa12 P Xaa13 V Xaa14 E K T L G A S G R  
Xaa15 E G K Xaa16 Xaa17 R Xaa18 S E R F K Xaa19 L Xaa20 P N Y N  
P D I I F K D E E N Xaa21 G A D R L M T Xaa22 R  
C K Xaa23 Xaa24 Xaa25 N S L A I Xaa26 V M N Xaa27 W P G V K  
L R V T E G W D E D G H H Xaa28 Xaa29 Xaa30 S L H Y  
E G R A V D I T T S D R D R Xaa31 K Y G Xaa32 L  
A R L A V E A G F D W V Y Y E S Xaa33 Xaa34 H Xaa35  
H Xaa36 S V K Xaa37 Xaa38 Xaa39 S Xaa40 A A Xaa41 Xaa42 G G

Where

C\* is a cysteine that may be modified, altered or substituted within another moiety or series of moieties as described herein;

Xaa1 is either V or G;	Xaa2 is either V, E or P	Xaa3 is either G or V
Xaa4 is either S or G;	Xaa5 is either R or K;	Xaa6 is either P, H or Y;
Xaa7 is either P or A;	Xaa8 is either R or K;	Xaa9 is any amino acid;
Xaa10 is either V or T;	Xaa11 is either A or L;	
Xaa12 is either S, I or V;	Xaa13 is either N or G;	Xaa14 is either P or A;
Xaa15 is either Y or A;	Xaa16 is either I or V;	Xaa17 is either A or S;
Xaa18 is either S, N or G;	Xaa19 is either E or D;	Xaa20 is either T or V;
Xaa21 is either T or S;	Xaa22 is either Q or E;	Xaa23 is either D or E;
Xaa24 is either R or K;	Xaa25 is either L or V;	Xaa26 is either S or A;
Xaa27 is either Q or M;	Xaa28 is either S or A;	Xaa29 is either E or Q;
Xaa30 is either E or D;	Xaa31 is either N or S;	Xaa32 is either L or M;
Xaa33 is either K or R;	Xaa34 is either A or N;	Xaa35 is either V or I;
Xaa36 is either C or V;	Xaa37 is either S or A;	Xaa38 is either E or D;
Xaa39 is either H or N;	Xaa40 is either A, V or L;	Xaa41 is either K or R; and
Xaa42 is either T, S or A.		